

Jolly Mon's Journey

FROM PSSM TO PSG

When her promising young horse began freezing in place, amateur rider Amy Ganci realized something was radically wrong.

By **Christina Keim**

Amy Ganci donned her shadbelly in early March this year in preparation for her first Prix St. Georges test on Jolly Mon. This moment held special significance for Ganci, given that she and her 11-year-old Oldenburg had been through a hellish journey that nearly ended in euthanization.

Ganci purchased “Joker” (Cavallo Star—Demoiselle) as a 4-year-old in 2012. The sweet, laidback chestnut was supposed to be a mount for her husband, Kevin Ganci. But when Amy brought Joker to his first dressage show, the horse took on a new persona. He became expressive and elegant, and Amy was smitten.

“I decided he had to be my horse,” Amy remembers with a laugh.

With the help of Lisa Blackmon, Joker's breeder, Amy developed the gelding's natural aptitude for dressage. The fitter he got, the more sensitive he became, occasionally bucking or bolting.

“He was reactive to things, but not spooky,” says Amy. “He noticed what was going on around him. As he moved up the levels, the behavior became increasingly prevalent. But even with his antics in the ring, I won quite a bit with him.”

Amy competed through third level before strange issues emerged during his 6-year-old year. She thought the subtle symptoms were training issues at first, but they escalated to a dramatic fall under saddle. Joker endured numerous tests, treatments and protocols with no clear improvement. He appeared to be wasting away. Amy was baffled as to what could be causing such a dramatic change in a previously healthy horse.

But thanks to Amy's persistence and Carter Judy, DVM, DACVS, at Alamo Pintado Equine Medical Center in Los

Olivos, California, Joker was finally diagnosed with Type 2 polysaccharide storage myopathy or PSSM. It took nearly two years to get Joker healthy and fit enough to compete again, but with careful management, he's begun to fulfill the potential that Amy saw in him as a youngster.

“A lot of times you just have to go with your heart on things,” says Amy. “I am so glad I gave him the chance.”

A TRICKY DIAGNOSIS

PSSM is one of several equine neuromuscular disorders. Afflicted animals have issues with the storage and utilization of glycogen in their muscles. The disorder is divided into two groups. In 2008, researchers determined that Type 1 PSSM is caused by a genetic mutation. The test for Type 1 looks for a specific genetic anomaly in a hair sample.

But subsequent genetic testing of hundreds of horses previously diagnosed with PSSM revealed that not all of them had this mutation, and those horses fall into the Type 2 category. It remains unclear what causes Type 2, and no validated genetic test exists to screen for this variation. Instead, Type 2 horses are diagnosed through a combination of clinical symptoms and the results of a muscle biopsy.

The good news is that most horses with either type of PSSM respond positively to changes in their diet and a consistent exercise regime. Further, with increased awareness of its incidence and greater sophistication in clinical evaluation of affected animals, researchers are gaining a better understanding of how best to diagnose and manage PSSM, as well as how to differentiate it from other disorders that present in a similar manner.

Stephanie Valberg, DVM, DACVIM and Mary Anne



McPhail Dressage Chair in Equine Sports Medicine at Michigan State University, is among the researchers on the cutting edge of PSSM study. “In the muscle biopsy, we are trying to see if there are changes in the muscle cells,” says Valberg. “Specifically, we are looking for a change in the way glycogen is being stored in the muscles, either in an unusual place or an unusual amount. In horses with Type 2 PSSM, there is an abnormality in the appearance of glycogen in the cells under the microscope.”

Analyzing muscle biopsies is both a science and an

“A lot of times you just have to go with your heart on things,” says Amy Ganci of her decision to keep pursuing a cure and a career for her horse Jolly Mon. *JESSICA FAN PHOTO*

art. In the lab, samples are stained and examined under the microscope. Improper sample handling can result in false results. Additionally, assessment of both the quantity and location of glycogen is subjective, as it's a normal component of the cell. There's also some overlap between the appearance of cells in a horse with PSSM



As a 6-year-old, Jolly Mon was competing at third level with his amateur-owner, Amy Ganci, and his future looked bright until a variety of mysterious symptoms appeared. *SUSANJSTICKLE.COM PHOTO*

and one with recurrent exertional rhabdomyolysis, another neuromuscular disorder. Therefore, diagnosing neuromuscular disorders in the horse requires a careful case history as well as supporting laboratory testing before a definitive diagnosis is possible.

“When horses have chronic muscle disorders like tying up, we see certain markers such as elevations in proteins that leak into the bloodstream,” says Valberg.

In particular, horses suffering from muscle disorders that cause acute muscle damage (such as RER) will show elevated creatinine kinase and aspartate aminotransferase levels in the bloodstream. For horses showing tying up symptoms and normal CK and AST levels, further diagnostics are indicated.

Valberg considers variables such as training schedule

in relation to fitness as well as vitamin E, selenium and electrolyte levels, before proceeding to test for a condition like PSSM. From an owner’s perspective, often the first symptoms they see are performance related and can vary by breed. Quarter Horses and Arabians with Type 2 PSSM most often show symptoms similar to tying up, including reluctance to move, stiffness and pain. They usually have elevated serum CK and AST levels. But in warmbloods like Joker, symptoms may be more subtle and usually start with poor performance without an increase in CK. They can also have gait abnormalities, sore muscles and a decrease in energy after 10 minutes of work. The median age of diagnosis in warmbloods is 8-11 years old.

Joker started having issues going on the bit in 2014. Some days he was stiff and reluctant to bend. Other times, he exhibited an intermittent irregularity in his movement. He started head tossing under saddle. Amy and Blackmon wondered if he might be “rein lame” or needed adjustments to his shoeing. They changed his bit and had the chiropractor out.

Then Amy received a panicked phone call from Blackmon. Joker was stuck in his field, muscles frozen. Though he walked out of it a little bit later, it was clear something abnormal was going on. Amy had a full veterinary work-up done, and Joker was tested for equine protozoal myeloencephalitis; his bloodwork came back mildly positive. He received two months of Protazil, a pelleted form of the medication diclazuril. But Amy wasn’t convinced they had the correct diagnosis.

“He never seemed like an EPM horse,” says Amy. “He always knew where his feet were, could handle getting in and out of our step-up trailer, and stepped onto the Theraplate OK. He was never wobbly. It just didn’t feel right.”

They pulled Joker’s shoes and turned him out for the duration of the EPM treatment. During this time, Amy and her husband brought their horses to their farm in Heath, Texas, about 25 miles east of Dallas. The Gancis are attorneys who run their practice out of a Dallas office, although Amy, 58, also has the flexibility to work from home. She specializes in equine legal issues including ownership planning and breeding.

Joker joined Amy’s former FEI horse and Kevin’s new youngster. Once home, they changed his grain from oats and sweet feed to a lower starch maintenance ration—Joker’s nickname is “Gordo,” since he’s such an easy

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keeper—and turned him out in a mostly bare pasture. Slowly, Amy resumed riding him, and as time went on, he started to look better. One day, about four months after putting Joker back to work, Amy was riding him in their front pasture when he reacted to something, as had happened so many times before. But this time, the pair went from cantering along to not moving in a heartbeat, causing Joker to fall.

“He literally got stuck, and his muscles were rigid,” says Amy. “We both went down.”

Despite cracking a rib in the fall, Amy’s first thought was for Joker. “I was worried whether he was hurt or not,” says Amy. “But he seemed like he was trying to get unstuck. Then he got up, bucked and went running back to the barn.”

Amy was at her wit’s end. Though Joker had showed talent and promise, she was becoming scared to ride him. She remembered a trainer in California who had expressed an interest in Joker in the past, even doing a trial ride. She reached out, and the trainer agreed to take Joker as a sales horse.

“A COMPLETELY DIFFERENT HORSE”

Shortly after Joker arrived in California, Amy received a call from the trainer.

“They said he was like a completely different horse from the one I let them ride a year ago,” says Amy.

The trainer suggested Amy reach out to the associates at Alamo Pintado Equine Medical Center. When Judy took on the case, he reviewed Joker’s history and repeated certain tests, including those for EPM, which were negative.

Since Joker’s fall, the muscles of his left shoulder had atrophied, and by the time Judy saw him, the musculature of his whole left side appeared lighter. Judy ran a bone scan to rule out possible injury, but he was already suspicious of an underlying muscular disorder. He’d seen previous cases present in the same manner: a younger horse who should be progressing in training but isn’t, one who has normal muscle enzymes yet still shows performance issues. Judy ordered a muscle biopsy.

“Muscles are a huge part of the horse, but people don’t tend to think of them first as a cause of a problem,” says Judy. “But once you are aware that something like PSSM is an option, you may actually recognize it sooner.”

The muscle biopsy for PSSM is a simple procedure that takes about five minutes. With the horse under light sedation, the veterinarian removes a small piece of the horse’s hamstring muscle, measuring about one cubic centimeter.

Joker’s muscle biopsy revealed what Judy had suspected: His cells showed the classic signs of Type 2 PSSM, with both increased levels and improper storage of glycogen.

Back in Texas, Amy was stunned by the news. She’d never heard of the disorder, and each night after work she scoured the internet for information. Joker returned to the sales barn, but not for long.

“The trainer just said, ‘I can’t do anything with him. He isn’t sellable,’” says Amy. “They were really intimidating heavily that I should just euthanize him.”

Amy wasn’t ready to give up just yet. Now that she had a definitive diagnosis—one which, as she read more about it, clearly matched all the symptoms Joker had been exhibiting—she hoped she could bring him back. Amy reached out to trainer Jason Canton, who was based in California at the time and who had helped start Joker. Canton went to the sales barn to see him.

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—Dr. Carter Judy

“He called me and said, ‘Bring him home. I will help you with him,’” says Amy. “He told me, ‘He is going to be a project, but he will be a good horse.’”

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After trial and error and a whole lot of persistence, Amy Ganci has figured out how to manage Jolly Mon's Type 2 PSSM and return to the show ring. ERNESTO PHOTOGRAPHY PHOTO

Meanwhile, Amy's research led her to the team at Kentucky Equine Research, which had resources on their website for horses with metabolic issues. Through KER Amy connected with Valberg, whom she pumped for advice. Amy learned that careful management of diet and regular exercise would be critical to help Joker recover.

"They seem to respond best to a diet with a limited amount of starch and sugar," says Valberg. "They should have little to no grain and avoid sugars like molasses. It is best to substitute fat as an energy source."

Valberg recommends feeding a hay that is less than 12% non-structural carbohydrate; this value can be obtained through a hay analysis. Many PSSM horses also benefit from a diet with a slightly higher content of high-quality amino acids.

KER markets a low-sugar, high-fat feed designed for PSSM horses called Re-Leve. Amy got her local feed store to carry the grain, and when Joker returned, she fed him this along with a soaked timothy hay. Eventually she added an omega-3 oil supplement and magnesium.

Soaking his hay for 30 minutes worked best to remove the sugars. "It was hard at first, because he was used to going out with his buddies in a 10-acre field," Amy says. "And though he needed lots of turnout, he couldn't have grass."

While Amy experimented with nutritional management strategies, that was only part of the solution. Joker needed a regular exercise program to help enhance his energy metabolism.

"Consistent exercise plays an important part in the

management of these horses," says Judy. "I have one client whose horse can't take a single day off without experiencing an increase in symptoms."

One of her biggest challenges under saddle was the asymmetry in his muscling, which caused him to move in an irregular way. Canton began flying out to Texas each month. He stayed for a week and helped Amy teach Joker how to use both sides of his body equally.

Meanwhile, Amy created a Facebook page (now discontinued) called My PSSM Pony, on which she shared Joker's story and the various experiments she conducted to manage his condition. She was overwhelmed by the positive response, and she soon found a community where she could share ideas, celebrate victories and commiserate about setbacks.

"I was shocked at the number of people who had PSSM horses in dressage or show jumping," says Amy. "Or people who suspected their horse had it."

THE LAST PIECE

Amy knew she needed a local trainer to help her keep Joker working correctly. But the irregular movement he frequently displayed made many trainers raise an eyebrow and comment, "We don't work lame horses." Amy and Canton knew that Joker wasn't in pain; he simply lacked the muscle development to move his body equally on both sides. Canton coached Amy to ride Joker like he was sound, but she struggled to help the horse use his body correctly.

One day, a friend invited Amy to watch a Tom Noone

clinic. There she saw trainer John Mason, a German licensed dressage trainer and U.S. Dressage Federation bronze and silver medalist, riding a huge horse that Amy learned was recovering from EPM. Something about how the horse moved reminded Amy of Joker, and she noticed that they focused on exercises that developed the quality of the gaits. Three months later, she saw the same horse with Mason again, and she couldn't believe the transformation. Impressed, she drove Joker three hours south to Mason's base in Conroe, Texas.

"John told me that Joker looked like a person who has had their arm in a cast for six months," says Amy. "But he also didn't shy away from the challenge of trying to bring the horse back."

Joker moved to Mason's farm on Dec. 1, 2017. Amy stays for three or four days at a time, sleeping in the living quarters of her horse trailer. With Mason's help, she's slowly rebuilt Joker's musculature. After six months, Joker needed his saddle refit because he had grown a quarter inch of muscle on his left shoulder.

As Joker has gotten stronger and more even, his work ethic has grown to match.

"Working seems to make him feel better," says Amy. "You can give him a 45-minute warm-up, followed by a 45-minute lesson, and he is still ready to go. He just loves the work. He has become such a powerful horse. Now we are working on teaching him to have carrying power not just push power. But it's all coming together."

When they travel to shows, Amy stays in her trailer and takes every opportunity to get Joker out of his stall. "I will be out walking him at 10 p.m. before bed, and then again before breakfast," says Amy. "The first time I returned to the ring last year I had to excuse myself because he was so fresh. But I played with the routine, and now if I am going to go watch someone ride, I just take him with me."

Looking back on their journey together, Amy is amazed at how far Joker has come. The transformation in her horse's performance has also helped Amy understand how uncomfortable he was before.

"My horse is so easy to half-pass now and easy to bend and to move," says Amy. "He went from not being able to do the changes to feeling lurchy from right to left to now having them both be the same. Now that he is more rideable and feels good, we are able to work on his trot next. We are building to a CDI trot."

Judy isn't surprised that Joker has recovered enough to compete at FEI-level dressage. "It's amazing how well diet and exercise works for these horses," he says. "But what I think is unique in this case is the persistence of Amy and her trainer. There are many horses with PSSM that improve significantly performance wise, but they might not reach their full potential without the persistence. But they can be successful at the upper levels."

Amy hopes that by sharing Joker's story, she can help owners of other horses with PSSM, as well as those that are undiagnosed but are experiencing the subtle symptoms of a problem.

"If more people knew at the very least that you have a diet alternative to try for a stiff horse, I think it could lead to more horses not being either thrown away or just written off for the lower levels," says Amy. 🍎

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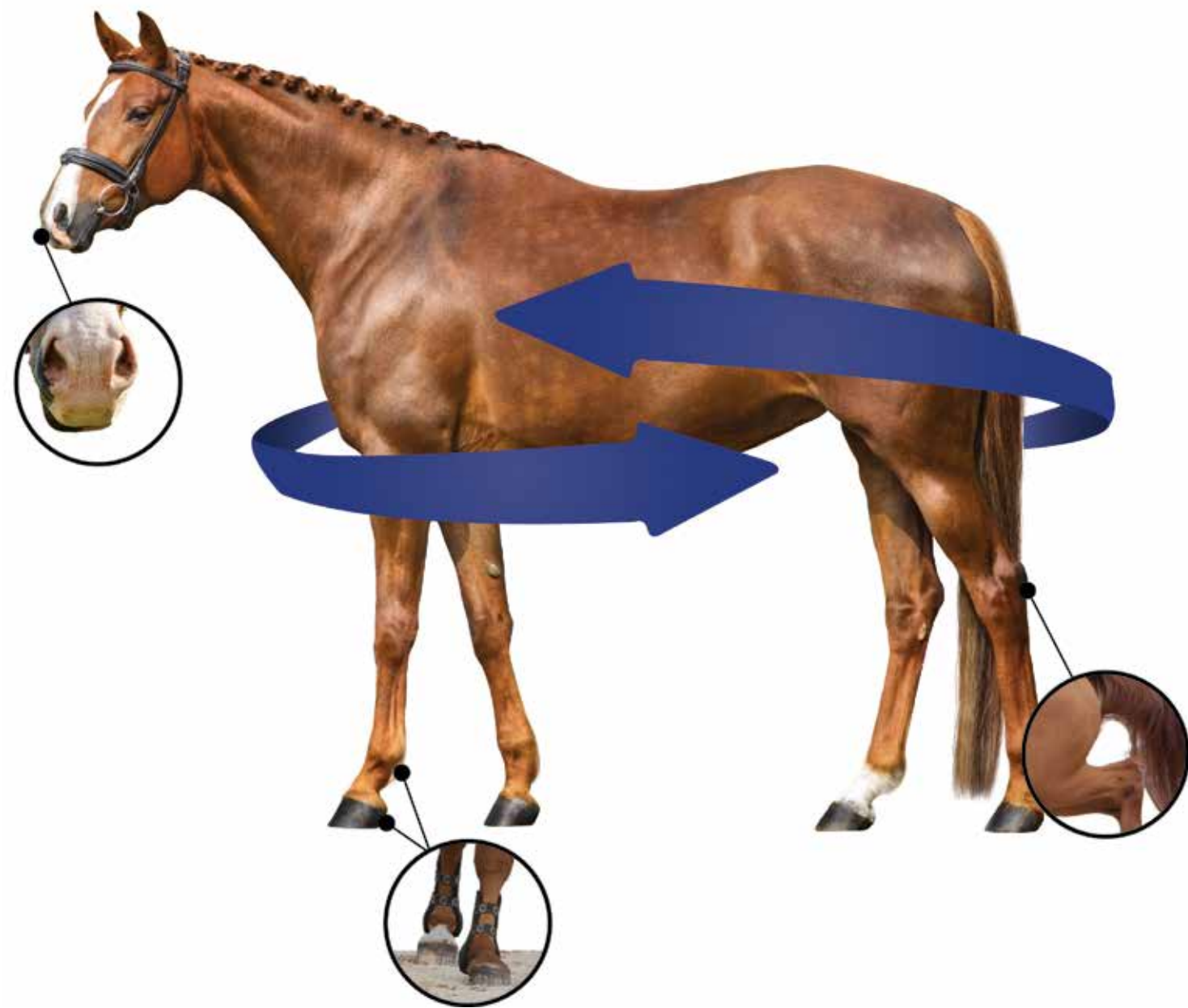
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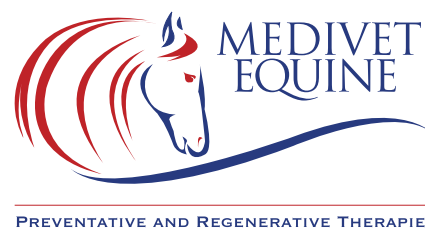
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